IN THE CLAIMS:

1. (Currently amended) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including: ~~a coil or antenna, a switched reactance circuit~~

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor ; ~~, and~~

a sensor~~, wherein said sensor~~ that can detect more than two values of a parameter, [[,]]

a transmitting device, wherein said transmitting device is capable of transmitting data derived from said sensor to said reader; and

a data receiving device, wherein said data receiving device is connected for receiving digital data derived from said reader and for providing said digital data to said processor,

~~wherein said sensor transponder receives power radiated from said reader for powering said sensor transponder, and further wherein said sensor transponder is capable of processing sensor data in said processor and transmitting said sensor data to said reader using said switched reactance circuit.~~

2. (Original) An electronic system as recited in claim 1, wherein said sensor comprises an analog device.

3. (Original) An electronic system as recited in claim 2, wherein said sensor transponder further comprises an analog/digital converter.

4. (Currently amended) An electronic system as recited in claim 1, ~~wherein said sensor comprises a digital sensor~~ wherein said device capable of transmitting includes a switched reactance circuit.

5. (Amended) An electronic system as recited in claim ~~1~~ 4, wherein said switched reactance circuit comprising a reactive component ~~switchably~~ connected to switchably affect electromagnetic radiation radiated from said reader.

6. (Currently amended) An electronic system as recited in claim ~~1~~ 5, wherein said reader includes a radiation transmitting device, ~~reader coil or antenna for transmitting electromagnetic radiation;~~ wherein said reader comprises a circuit to detect changes in loading of said radiation transmitting device, ~~reader coil or antenna~~ as a result of switching of said switched reactance circuit in said sensor transponder.

7. (Currently amended) An electronic system as recited in claim 1, wherein said ~~receiver coil or antenna~~ radiation receiving device comprises at least one from the group including a tap ~~or~~ and a capacitive divider for providing power to at least one from the group including said sensor ~~or to~~ and said ~~controller~~ processor.

8. (Currently amended) An electronic system as recited in claim 7, wherein said ~~receiver a coil or antenna~~ radiation receiving device comprises multiple taps, wherein tap location is dynamically selected depending on loading to provide impedance matching and efficient energy transfer.

9. (Currently amended) An electronic system as recited in claim 1, wherein said ~~receiver coil or antenna and said~~ sensor transponder ~~are~~ is located in a metal enclosure and wherein said ~~receiver coil or antenna~~ radiation receiving device is tuned to receive radiation at a frequency sufficiently low so a substantial portion of said radiation is able to penetrate through said metal enclosure, there being no feed through passing through said enclosure.

10. (Original) An electronic system as recited in claim 9, wherein said frequency is less than 125 kHz.

11. (Original) An electronic system as recited in claim 9, wherein said frequency is less than about 44 kHz.

12. (Original) An electronic system as recited in claim 9, wherein said frequency of about 4 kHz.

13. (Original) An electronic system as recited in claim 1, wherein said sensor transponder is hermetically sealed.

14. (Original) An electronic system as recited in claim 13, wherein said sensor transponder is for implanting in living tissue.

15. (Original) An electronic system as recited in claim 14, wherein said sensor transponder is for implanting in a bone.

16. (Original) An electronic system as recited in claim 1, wherein said processor includes an integrated clock.

17. (Original) An electronic device as recited in claim 16, wherein said integrated clock comprises an RC clock.

18. (Original) An electronic system as recited in claim 1, wherein said sensor transponder further includes a non-volatile memory for storing sensor data.

19. (Original) An electronic system as recited in claim 1, wherein said sensor transponder further includes an energy storage device.

20. (Currently amended) An electronic system as recited in claim 1, wherein said energy storage device is connected to provide a higher power to said sensor than is available from said ~~coil or antenna~~ radiation receiving device.

21. (Currently amended) An electronic device as recited in claim 1, further comprising a receiver resonant tank circuit ~~having a switched reactance circuit~~ and a power-using device, said receiver resonant tank circuit for receiving electromagnetic radiation for powering said power-using device, ~~said switched reactance circuit for facilitating external communication,~~ said receiver resonant tank circuit ~~comprising~~ including said ~~a receiver coil or antenna~~ radiation receiving device, wherein said ~~receiver coil or antenna~~ radiation receiving device includes a first end and a second end, wherein said receiver resonant tank circuit further includes an impedance matching circuit, wherein said impedance matching circuit is connected to said ~~receiver coil or antenna~~ radiation receiving device to provide greater current to said power-using device than would be available to said power-using device if said power-using device were connected between said first and said second end.

22. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a tap between said first and said second end.

23. (Original) An electronic device as recited in claim 22, wherein said tap is provided at a location between said first end and said second end so said power-using device does not substantially degrade Q factor of said receiver resonant tank circuit.

24. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a plurality of taps between said first and said second end, wherein connection is switchably provided to one of said plurality of taps to most closely impedance match to impedance of said power using device.

25. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit comprises a capacitive divider.

26. (Original) An electronic device as recited in claim 25, wherein said capacitive divider provides an output set so said power-using device does not substantially degrade Q factor of said receiver resonant tank circuit.

27. (Currently amended) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so impedance of said power-using device approximately matches impedance presented by said ~~coil or said antenna~~ radiation receiving device at said output.

28. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so power transfer to said receiver resonant tank circuit from said electromagnetic radiation is not substantially degraded for expected power consumption of said power-using device.

29. (Original) An electronic device as recited in claim 21, wherein said impedance matching circuit provides an output so power transfer to said power-using device from said receiver resonant tank circuit is optimized for expected power consumption of said power-using device.

30. (Currently amended) An electronic device as recited in claim 21, ~~further comprising a processor;~~ wherein said impedance matching circuit has an output that can be dynamically varied during operation under the control of said processor, so power transfer to said receiver resonant tank circuit from said electromagnetic radiation is optimized for power actually being consumed by said power-using device and so power transfer to said power-using device from said receiver resonant tank circuit is optimized for expected power consumption of said power-using device.

31. (Currently amended) An electronic device as recited in claim 1, further comprising ~~21, wherein said power-using device comprises a sensor;~~ an actuator; ~~or~~ and ~~a rechargeable energy storage device.~~

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36. (Currently amended) An electronic device as recited in claim ~~21, further comprising a~~ 1, wherein said reader ~~comprising~~ includes an rf receiver, wherein said ~~power-using device comprises~~ transponder includes an rf transmitter for transmitting data to said reader.

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42. (Currently amended) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including a sensor and a ~~receiver coil or antenna~~ radiation receiving device, wherein data from said sensor is conditioned to provide sensor data ratiometric with magnitude of excitation voltage provided by said ~~receiver coil or antenna~~ radiation receiving device.

43. (Currently amended) An electronic system as recited in claim 42, wherein said ~~receiver coil or antenna~~ radiation receiving device includes a tap, wherein said sensor transponder is connected to receive power from said tap, and wherein said excitation voltage is voltage at said tap.

44. (Currently amended) An electronic system as recited in claim 42, wherein said data is transmitted by at least one from the group including a switched reactance circuit ~~or by~~ and a transmitter.

45. (Currently amended) An electronic system as recited in claim 1, ~~comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including a plurality of networked switched reactance devices connected to a single a receiver coil or antenna,~~ further comprising a plurality of said remotely powered and remotely interrogated sensor transponders, wherein each said sensor transponder ~~receives power~~ is connected for receiving all power for operating said sensor transponder derived from power radiated from said reader, wherein each ~~switched reactance device~~ said sensor transponder has an address and wherein each ~~switched reactance device~~ said sensor transponder has a system to transmit data so as to avoid collisions.

46. (Original) An electronic system as recited in claim 45, wherein said system to avoid collisions includes a random timing generator.

47. (Currently amended) An electronic system as recited in claim 45, wherein each of said plurality of ~~networked switched reactance devices~~ sensor transponders includes data logging.

48. (Currently amended) An electronic system as recited in claim 45, wherein each of said plurality of networked ~~switched reactance devices~~ sensor transponders includes energy storage.

49. (Currently amended) An electronic system as recited in claim 45, wherein each of said plurality of networked ~~switched reactance devices~~ sensor transponders includes two way communication.

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51. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim ~~50~~ 13, wherein said transponder is part of a medical implant.

52. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim 51, wherein said transponder is part of an orthopedic implant.

53. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim ~~50~~ 13, further comprising a housing facing said transponder, wherein said transponder senses position with respect to said housing.

54. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim ~~50~~ 13, wherein said sensor comprises at least one from the group including a displacement sensor, a pressure sensor, a force sensor, a torque sensor, ~~or~~ and a temperature sensor.

55. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim 54, wherein said displacement sensor comprises a variable reluctance transducer.

56. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim 1, ~~for sensing corrosion of a member, comprising a comprising a reader, a remotely powered sensing transponder, and~~ further comprising a member subject to corrosion, ~~said transponder including a coil or antenna, a switched reactance circuit, a processor, and a sensor, wherein said transponder receives power radiated from said reader for powering said sensor,~~ wherein said sensor is located to detect corrosion of said member, ~~and further wherein said transponder is capable of transmitting sensor data to said reader using said switched reactance circuit.~~

57. (Currently amended) ~~A~~ An electronic ~~sensing~~ system as recited in claim 56, wherein said ~~apparatus for reporting sensor data~~ transponder can ~~report~~ transmit at least one from the group including a change in said sensor data ~~or can report~~ and sensor data within an acceptable limit.

58.-70. Cancel

71. (New) An electronic system as recited in claim 1, wherein said transmitting device includes a switched reactance circuit.

72. (New) An electronic system as recited in claim 1, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

71. (New) An electronic system as recited in claim 1, wherein said receiving device includes a demodulator.

72. (New) An electronic system as recited in claim 1, further comprising an RF transceiver, wherein said receiving device and said transmitting device are included in said RF transceiver.

73. (New) An electronic system as recited in claim 1, wherein said processor is connected to receive said digital data for performing at least one from the group including: reprogramming said processor, triggering data logging, initiating transmission of stored data, and initiating calibration.

74. (New) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor;

a sensor that can detect more than two values of a parameter;

a circuit for providing sensor calibration; and

a transmitting device capable of transmitting data derived from said sensor to said reader.

75. (New) An electronic system as recited in claim 74, wherein said circuit for providing sensor calibration includes at least one from the group including a known resistance and a known reactance switchably connected across said sensor.

76. (New) An electronic system as recited in claim 74, wherein said circuit for providing sensor calibration is under processor control.

77. (New) An electronic system as recited in claim 74, wherein said processor includes a program to perform said sensor calibration automatically.

78. (New) An electronic system as recited in claim 74, wherein at least one from the group including said processor and said reader includes a program to adjust sensor data based on results of said calibration.

79. (New) An electronic system as recited in claim 74, wherein said transmitting device includes a switched reactance circuit.

80. (New) An electronic system as recited in claim 74, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

81. (New) An electronic system as recited in claim 74, further comprising a data receiving device, wherein said data receiving device includes at least one from the group including a demodulator and an RF transceiver, wherein said RF transceiver includes said data receiving device and said transmitting device.

82. (New) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor;

a sensor that can detect more than two values of a parameter;

a transmitting device capable of transmitting data derived from said sensor to said reader; and

an RC clock connected to encode clock data with said sensor data for transmission by said transmitting device.

83. (New) An electronic system as recited in claim 82, wherein said reader includes a processor programmed to recover sensor data from a signal including both sensor data and clock data.

84. (New) An electronic system as recited in claim 82, wherein said sensor transponder can withstand forces higher than 90,000 G's.

85. (New) An electronic system as recited in claim 82, wherein said transmitting device includes a switched reactance circuit.

86. (New) An electronic system as recited in claim 82, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

87. (New) An electronic system as recited in claim 82, wherein said receiving device includes a demodulator.

88. (New) An electronic system as recited in claim 82, further comprising an RF transceiver, wherein said receiving device and said transmitting device are included in said RF transceiver.

89. (New) An electronic system, comprising a reader and a remotely powered and remotely interrogated sensor transponder, wherein said sensor transponder can withstand forces higher than 90,000 G's, said sensor transponder including:

a radiation receiving device connected for receiving power, wherein all power for operating said sensor transponder is derived from power radiated from said reader and received by said radiation receiving device;

a processor;

a sensor that can detect more than two values of a parameter,

a transmitting device capable of transmitting data derived from said sensor to said reader.

90. (New) An electronic system as recited in claim 89, wherein said transmitting device includes a switched reactance circuit.

91. (New) An electronic system as recited in claim 89, wherein said a radiation receiving device includes at least one from the group including a coil and an antenna.

92. (New) An electronic system as recited in claim 89, wherein said receiving device includes a demodulator.

93. (New) An electronic system as recited in claim 89, further comprising an RF transceiver, wherein said receiving device and said transmitting device are included in said RF transceiver.